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INVESTIGATION OF BIOMARKER OF EXPOSURE OF  
ADULT SMOKERS SMOKING ELECTRICALLY HEATED  
AND CONVENTIONAL CIGARETTES.

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The electrically heated cigarette (EHC) is made of conventional tobacco filler rolled in a tobacco mat and smoked in a battery operated lighter, which heats the tobacco during puffing. When smoked in a smoking machine according to the FTC method the electrically heated cigarette (3mg tar, 0.2mg nicotine) showed marked reduction of CO in mainstream smoke as compared to a Kentucky standard reference cigarette, 1R4F. EHC-1 and EHC-2 have different filters. The purpose of the study was to determine whether CO in exhalate, CO-hemoglobin and nicotine and 5 major nicotine metabolites in 24 hour urine differ among smokers of EHC-1, EHC-2, CC (conventional cigarettes) and no-smoking. Study population: 110 healthy, adult male and female subjects smoking 5 - 25 CC (11mg tar, FTC) per day.

Study design: Controlled, randomized, stratified for gender and number of cigarettes smoked per day. After consenting, subjects were screened to meet inclusion and exclusion criteria. Eligible subjects were confined for 10 days to control for smoking (number of cigarettes per day and smoking times). Baseline investigations were on day 2, thereafter subjects were randomized to one of 5 groups: CC 11 mg tar; CC 3 mg tar; EHC-1; EHC-2; no-smoking. Investigations: CO in exhalate was measured using a Micro Medical CO Meter, CO-hemoglobin was measured by spectrophotometry using a CO-Oximéter on days 2 (baseline), 3, 5 and 10. Nicotine and metabolites in urine were determined by LC-MS/MS. Data analysis: Data were calculated as change from baseline and compared between the groups.

CO and CO-hemoglobin were decreased by about 25 % when smokers were switched from CC 11 mg tar to CC 3 mg tar. CO and CO-hemoglobin showed levels comparable to no smoking after switching to EHC-1 and EHC-2. Nicotine and metabolite excretion in urine decreased in the CC 3 mg tar group, the EHC-1 and EHC-2 groups.

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